



Reclamation Research Unit

Department of Land Resources and Environmental Sciences

Montana State University

106 Linfield Hall, Bozeman, MT 59717-2910

Phone: 406/994-4821 FAX: 406/994-4876

<http://www.montana.edu/reclamation>

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EMAIL _____x_____

Date: October 24, 2005

To: Sue Sillick

From: Stuart Jennings

Re: Progress Report 9. *Evaluation of Organic Matter Addition and Incorporation on Steep Cut slopes, Phase II: Test Plot Construction and Performance Monitoring*

The ninth progress report of Phase II of the above referenced project is attached. The narrative describes work occurring between July 1, 2005 and September 30, 2005.

Quarterly Progress Report #9
For the period July 1, 2005 – September 30, 2005

**EVALUATION OF ORGANIC MATTER ADDITION
AND INCORPORATION ON STEEP CUT SLOPES**

***Phase II: Test Plot Construction and
Performance Monitoring***

Prepared For:

Montana Department of Transportation
P.O. Box 201001
Helena, MT 59620-1001

Prepared By:

Reclamation Research Unit
Department of Land Resources and Environmental Sciences
Montana State University
Bozeman, MT 59717-2910



October 2005

Task Analysis and Discussion

Monitoring of field sites along U.S. Highway 2 near Happys Inn occurred during the past quarter. Expenditures incurred are attributable to progress report writing, communications, travel to the research sites and collection of vegetation, soil and erosion data. Monitoring consisted of vegetation canopy measurement, soil sampling, erosion estimation using methods



Figure 1. Happys Inn glacial silt site.



Figure 2. Happys Inn alluvial rock site.

developed by BLM for Montana rangeland sites and collection of vegetation samples for measurement of plant production. Observations from the site suggest that many of the seeded species have persisted and that plant litter accumulation on the compost blanket plots from the first growing season is considerable. The incorporated compost plots appear to have comparable vegetation to the compost blanket plots at the end of the second growing season. The control plots without added compost exhibit poor vegetation growth in both the glacial silt and alluvial rock substrates. Differences between compost treatments will be statistically evaluated at the end of the third growing season (2006).

An opportunistic trip was made in early September to look at a related project in Wyoming on U.S. Highway 89 east of Alpine Wyoming. This well-traveled roadway parallels the Snake River in Hoback Canyon south of Jackson, WY. Recent road construction created numerous steep rock cut slopes. The Wyoming Dept. of Transportation in cooperation with Rexius (compost blower truck manufacturer) conducted a demonstration of a compost blanket on a steep cut slope during fall 2003 (Figure 3). Reconnaissance of the demonstration plot revealed successful establishment of the seeded species and very limited erosion in September 2005 after the second growing season (Figure 4).



Figure 3. Compost application on a steep cut slope, 2003. Image provided courtesy of Rexius.



Figure 4. Vegetation development on compost blanket treatment, September 2005. Reclamation Research Unit photo by Stuart Jennings.

Task K - Year 2 Monitoring--2005

This task is 75% complete. Fall monitoring occurred at Happys Inn on September 12-14, 2005. Monitoring of the Miles City research site is planned for the fourth quarter of 2005. Tabular results from monitoring will be appended as raw data to the next progress report.

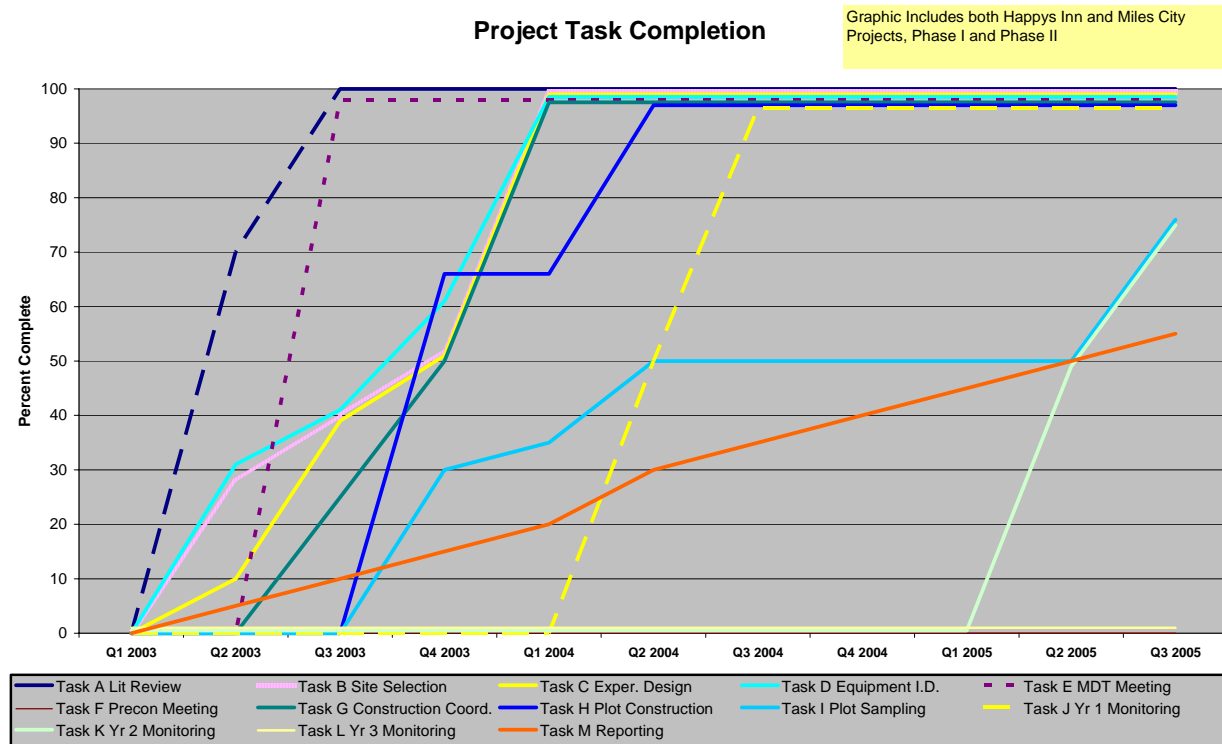
Task M - Reporting

This ninth quarterly report satisfies the periodic reporting requirement of the contract. A Final Report will also be completed in 2006 summarizing the research findings.

Schedule and Degree of Completion—all research sites

| <i>Task Description</i> | <i>Budgeted Total Phase II</i> | <i>Proposed Schedule</i> | <i>Actual Schedule</i> | <i>Degree of Completion</i> | <i>Estimated Expenditure during current quarter</i> |
|---|---------------------------------------|---------------------------------|-------------------------------|------------------------------------|--|
| Task B Site Reconnaissance | \$678 | Q3, 2003 | Q3 2003, and Q1 2004 | 100% | 0 |
| Task C Experimental Design | \$407 | Q4, 2003 | Q4 2003, and Q1 2004 | 100% | 0 |
| Task G Construction Schedule Coordination | \$377 | Q3, 2003 | Q1, 2004 | 100% | 0 |
| Task H Plot Construction | \$36,087 | Q4, 2003 | Q4, 2003 | 100% | 0 |
| Task I Site Sampling | \$8761 | Q4, 2003 and Q3 2005 | Q4, 2003 Q3, 2005 | 75% | 0 |
| Task J Year 1 Monitoring | \$13,083 | Spring and Fall, 2004 | Spring and Fall, 2004 | 100% | 0 |
| Task K Year 2 Monitoring | \$15,912 | Spring and Fall, 2005 | Spring and Fall, 2005 | 75% | \$4000 |
| Task L Year 3 Monitoring | \$16,065 | Spring and Fall, 2006 | Spring and Fall, 2006 | 0% | 0 |

| | | | | | |
|------------------|----------|---------------------------------------|---------|-----|--------|
| Task M Reporting | \$16,380 | Quarterly and Final Report, Fall 2006 | ongoing | 55% | \$1000 |
|------------------|----------|---------------------------------------|---------|-----|--------|



Problems and Resolution

No problems were encountered during the current quarter.

Accomplishments

Completion of the Happys Inn 2005 monitoring occurred during the past quarter.

Fiscal Expenditure

Amount Spent by budget category:

| <i>Cost Category</i> | <i>Spent prior to current quarter (\$)</i> | <i>Spent during the current quarter (\$)</i> | <i>Total spent to date (\$)</i> |
|-----------------------------|---|---|--|
| Labor and Benefits | \$38,594 | \$4408 | \$43,002 |
| Operational Expenses | \$6405 | \$360 | \$6765 |
| Subcontracted Services | \$16,764 | 0 | \$16,764 |
| Indirect Charges | \$11,437 | \$326 | \$11,763 |
| <i>Total Spent</i> | <i>\$73,200</i> | <i>\$5094</i> | <i>\$78,294</i> |

Total Project Award \$108,975 (original budget) + \$9031 (modification April 2004)
 \$118,006 (total award)

Amount Remaining \$39,712